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SKADDEN, ARPS, SLATE, MEAGHER & FLOM

333 WEST WACKER DRIVE

CHICAGO, ILLINOIS 60606-1285

(312) 407-0700

FAX: (312) 407-0411

DIRECT DIAL
(312) 407-0503

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June 29, 1993

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Secretary
Federal Communications Commission
Mail Stop 1170
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Re: PR Docket No. 93-61, RM-8013,
FCC 93-141

Dear Sir or Madam:

On behalf of Sensormatic Electronics Corporation, please find enclosed an original and five copies of its "Comments" in the above AVM proceeding.

Please stamp and return the extra copy to confirm your receipt. Please contact me should you have any questions or require additional information concerning this matter.

Sincerely yours,

James M. Fink

James Fink

Enclosures

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Before the

FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 90 of	)	PR Docket No. 93-61
the Commission's Rules to Adopt	)	RM-8013
Regulations for Automatic Vehicle	)	FCC 93-141
Monitoring Systems	)	

COMMENTS OF SENSORMATIC ELECTRONICS CORPORATION

Warren G. Lavey
James M. Fink
Skadden, Arps, Slate,
Meagher & Flom
333 West Wacker Drive
Chicago, Illinois 60606
(312) 407-0830

Its Attorneys

June 29, 1993

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SUMMARY

As one of the largest manufacturers of Part 15 devices and the first to make extensive use of the 902-928 MHz band, Sensormatic Electronics Corporation ("Sensormatic") strongly opposes the Commission's proposal to make permanent the interim rules it adopted in 1974 for Automatic Vehicle Monitoring ("AVM") systems in the 902-928 MHz band. The Commission's 1974 rationale for temporarily authorizing AVM operation in the band (i.e., no interference potential) is no longer valid. Sensormatic also strongly opposes the Commission's proposals to (1) flood the entire band with new Location and Monitoring Services ("LMS") under Part 90 and (2) impose crippling new restrictions on Part 15 devices operating in this band in order to

[redacted]

Against this backdrop of Commission precedent, the Commission's proposed action in the current proceeding to greatly increase the number and types of Part 90 licensees in what has always been a Part 15 band is irrational.

ence. Even if the Commission was injudicious enough to stop the manufacturing of new Part 15 devices, the Commission would have to identify, confiscate, and deactivate the millions of existing Part 15 devices currently operating. The cost of such an enforcement action would certainly be astronomical and probably unsuccessful.

To realize the full potential of AVM and LMS services, both AVM and LMS services should be placed in a larger and less crowded band, perhaps the 1.85 to 2.20 GHz "emerging technologies" band. Placing AVM and LMS services in the "emerging technologies" band would accommodate the needs of all concerned and would avoid the massive dislocation of, and stranded investment by, Part 15 and other current users of the 902-928 MHz band.

If AVM systems must remain in the band, they should continue to operate there only on an interim basis so that the Commission has the flexibility to reconsider the issue at a later date. Under no circumstances should the Commission expand licensed operations in this band beyond AVM systems. Expanding Part 90 authorizations to include new LMS services would cause a severe overcrowding of licensed operators in the band and would be tantamount to removing secondary Part 15 users from this band. Furthermore, placing crippling restrictions on Part 15 devices

in the 902-928 MHz band would be a drastic and unnecessary step that would reward inefficiency of Part 90 users and fail to take into account the tremendous public benefits associated with Part 15 operation in this band. The Commission should require AVM operators to utilize spectrum-efficient equipment and should establish an advisory committee to study ways to minimize interference among the band's current users.

If new LMS services are authorized in the 902-928 MHz band, both AVM and LMS services should only be authorized in the 920-928 MHz sub-band (allowing two systems with four MHz each) and only on an equal, secondary basis with Part 15 users. Furthermore, the 902-920 MHz sub-band should be set aside as a "safe haven" for Part 15 users, with AVM and LMS services excluded.

Before the

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Monitoring Systems	)	

COMMENTS OF SENSORMATIC ELECTRONICS CORPORATION

Sensormatic Electronics Corporation ("Sensormatic"), through its attorneys, hereby submits comments in the above-captioned proceeding regarding the operation of Part 90 and Part 15 devices in the 902-928 MHz band.[1] Sensormatic is a member of the Part 15 Coalition that is also submitting comments in this proceeding and Sensormatic supports those comments.

Sensormatic is filing comments separately in order to address additional issues particular to Sensormatic's business. To its knowledge, Sensormatic is

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[1] Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, Notice of Proposed Rule Making, 8 FCC Rcd. 2502 (1993) ("AVM Notice").

the largest manufacturer, and its customers are the heaviest users, of Part 15 devices in the 902-928 MHz band.

The temporary licensing of Automatic Vehicle Monitoring ("AVM") systems in the 902-928 MHz band is no longer in the public interest. The Commission should scrap the interim rules authorizing AVM systems in the band and place all AVM systems, as well as all new LMS services, elsewhere in the radio spectrum, perhaps in the larger and less crowded 1.85 to 2.20 MHz "emerging technologies" band. The Commission's 1974 rationale for temporarily authorizing AVM operation in the 902-928 MHz band (i.e., no interference potential) is no longer valid. Since 1974, the number of Part 15 devices and other secondary uses in the band has exploded. Furthermore, explosive growth in Part 15 devices is likely to continue with the introduction of approximately 30 million high-powered digital cordless phones operating in the band by 1996.

For the aforementioned reasons, Sensormatic strongly opposes the Commission's proposals to (1) make the interim rules for AVM systems permanent; (2) flood the entire band with new Location and Monitoring Services ("LMS") under Part 90; and (3) impose crippling new restrictions on Part 15 devices operating in this band in order to accommodate the new LMS services. Any one of

these proposals by itself would probably be sufficient to render many Part 15 devices virtually useless in the band and would be tantamount to removing many Part 15 devices from the band altogether. Collectively, these proposals would be an unmitigated disaster that could completely eliminate all Part 15 devices from the band.

The public interest dictates that the Commission continue to permit Part 15 devices to operate throughout the 902-928 MHz band without new restrictions or new interference sources. The public wants and needs Part 15 devices in the 902-928 MHz band. For over 20 years the Commission has authorized and encouraged manufacturers to invest in and develop Part 15 devices for use in the 900 MHz band. Users of Part 15 devices have also relied on this Commission policy in deciding which Part 15 devices to purchase

users in Part 15 devices in the 902-928 MHz band, as well as the large public interest in the continuing usefulness of Part 15 devices in this band. The Commission's proposals would cause irreparable and widespread harms to consumers, both those who use Part 15 devices and those who benefit from them indirectly. Furthermore, the proposals would cause the loss of tens of thousands of jobs, damage the businesses of many Part 15 manufacturers, and cost their customers billions of dollars in wasted investment.

Flooding the 902-928 MHz band with a significant

INTRODUCTION: PUBLIC BENEFITS OF SENSORMATIC'S PART 15 DEVICES

Sensormatic is the world's largest manufacturer and supplier of electronic article surveillance ("EAS") equipment to retailers. EAS devices are based on radio frequency technology and perform as field disturbance sensors which deter shoplifting and internal theft by providing each piece of merchandise with its own anti-theft alarm. Sensormatic's EAS systems consist of electronic detection units used in conjunction with specially designed and sensitized reusable tags and disposable labels.

Sensormatic's EAS systems have been installed in tens of thousands of retail establishments of all kinds and sizes, blanketing the country with installations in all 50 states. Sensormatic has sold or leased well over 100,000 EAS systems and over one billion tags and labels, valued at many billions of dollars, protecting over $60 billion worth of retail merchandise annually.

Shoplifting is pervasive, and its economic impact on consumers is enormous. Annual nationwide shoplifting losses exceed $30 billion. Lost inventory varies depending on a number of factors, but normally ranges from one percent to five percent of sales. The use of Sensormatic's EAS systems and tags results in average inventory loss

reduction per retailer of approximately 50 percent and, in many cases, as much as 75-80 percent. This saving restrains prices and saves consumers billions of dollars annually.

All kinds of retail businesses, including major nationwide retail corporations, depend on EAS equipment manufactured by Sensormatic for the protection of their merchandise (e.g., clothing, drugs, packaged food, eyeglasses, music, hardware, books, or videocassettes).[2]

The propagation characteristics of the 902-928 MHz band are ideally and uniquely suited to EAS systems. Due to the directional nature of microwave propagation, Sensormatic's 902-928 MHz system can unobtrusively cover

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[2] The following are examples of major retailers that rely on antishoplifting systems bought from Sensormatic: Sears Roebuck, J.C. Penney, Montgomery Ward, Bloomingdales, Burdines, I. Magnin, Lazarus, Bergdorf-Goodman, Jordan Marsh, Bonwit-Teller, Sak's Fifth Avenue, Lord & Taylor, May Department Stores, R.H. Macy, Wal-Mart, K-Mart, Zayre, Marshall's, Woolworth, McCrory, Ben Franklin, Woodward & Lothrop, Hecht Company, Belks, J.L. Hudson, Marshall Field, Strawbridge & Clothier, Blockbuster Video, Magnavision, Burlington Coat Factory, Casual Corner, CVS, Rite-Aid Drugs, Ernst Home Centers, Athlete's Foot, Lane Bryant, Lerner's, Pier-1 Imports, Ralph Lauren, Shoe Town, Pants Corral, The Gap, The Limited, Herman's World of Sporting Goods, Revco Drugs, Peaches Records and Tapes, Sam Goody, Pep Boys, ServiStar, True Value Hardware, and Ace Hardware.

Of the 100 largest department store retailers, over three quarters use Sensormatic equipment and tags.

the wide exits found in most large department stores and shopping malls; other systems employing low radio frequency (2-10 MHz) or magnetic fields (10 KHz) cover openings of three to six feet, greatly restricting customer passage at store exits, and therefore cannot do the job as effectively.

I. CRIPPLING PART 15 DEVICES IN THE 902-928 MHZ BAND WOULD BE OUTRAGEOUSLY UNJUST AND WOULD CONTRADICT OVER 20 YEARS OF FCC PRECEDENTS RELIED UPON BY MANUFACTURERS AND USERS

In the AVM Notice, the Commission initially encouraged a proposal to remove Part 15 devices from the 902-928 MHz band entirely.[3] Apparently, the Commission subsequently realized the extreme unfairness of this unjust and irrational proposal and issued an erratum, proposing instead the placement of additional limitations on Part 15 devices in the band short of removal from the band.[4] Such restrictions could include restricting where Part 15 devic-

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[3] AVM Notice at 2506-07 ¶ 24 (released April 9, 1993). The FCC stated that the spectrum priority system may no longer effectively prevent harmful interference because LMS licensees providing services to police and ambulance organizations "could require some time to identify a source of interference and take action to eliminate the problem." Id. at 2506.

[4] AVM Notice, ERRATUM, 1993 FCC LEXIS 2209 (released May 5, 1993).

es may operate within the band, placing stricter operation

the 915+-5 MHz band.[7] Recognizing that 10 MHz in the 900 MHz band was insufficient for the effective operation of such Part 15 devices, the Commission, in 1965, proposed to expand the permitted band to 20 MHz: 915+-10 MHz.[8] In 1970, the Commission broadened the types of Part 15 devices that would be permitted in the 900 MHz band to include all field disturbance sensors ("FDS"). In addition, the Commission proposed to expand the permitted band even further to 26 MHz: 915+-13 MHz.[9] In 1971, the Commission adopted a new Subpart F to its Part 15 rules, which authorized FDS

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[7] Amendment of Part 15 of the Commission's Rules To Add Regulations Governing the Use of Radio Frequency Operated Intruder Alarms, Notice of Proposed Rulemaking, 28 Fed. Reg. 6567 (June 26, 1963).

[8] Id., Second Notice of Proposed Rulemaking, 30 Fed. Reg. 6541 (May 12, 1965).

[9] Amendment of Part 15 of the Commission's Rules to Add Regulations Governing the Use of Field Disturbance Sensors (Formerly Designated as Radio Frequency Operated Intruder Alarms), 35 Fed. Reg. 18674 (Dec. 9, 1970). The delay in completing the rulemaking proceeding was due to many reasons unrelated to the benefits of Part 15 devices: (1) the reallocation of the 806-960 MHz band to the land mobile services; (2) Part 15 technological advances such as the use of modulation; (3) new Commission authority to regulate the manufacture and marketing of radio devices; and (4) the increased variety of applications for which field disturbance sensors were being used. See id., 31 F.C.C.2d 210 at ¶¶ 1-6.

devices to operate in many frequency bands, including the 902-928 MHz band.[10]

In 1974, the Commission authorized wideband AVM systems to operate in limited segments of the 902-928 MHz band: 904-912 MHz and 918-926 MHz.[11] The Commission emphasized its expectation that wideband AVM operation in these two sub-bands would not interfere with, and could tolerate interference from, existing users of the band.[12] At the time, this expectation of non-interference was quite rational and justified; there were very few AVM systems in existence and the AVM systems that did exist were primarily wideband in nature and only authorized in limited segments of the 902-928 MHz band. It was clearly the Commission's intent to protect existing users of the band; interim AVM services were permitted only because the Commission foresaw

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10 FDS Authorization Order at ¶ 23 and Appendix.

11 Inquiry as to Automotive Vehicle Locator Systems in the Land Mobile Radio Services Involving Parts 2, 89, 91 and 93 of the Commission's Rules, 30 R.R.2d 1665, 1670-71 (1974) ("1974 AVM Order"). Two other small sub-bands, 903-904 and 926-927 MHz, were licensed to AVM operators only on a developmental basis for narrow-band systems. Id. at 1671. To date, there has been very little AVM licensing activity in these bands. AVM Notice at 2504.

12 1974 AVM Order at 1670.

no interference with existing users. Moreover, there were few existing users of the 902-928 MHz band at the time.

The Commission's encouragement of Part 15 use in the 902-928 MHz band continued in 1985, when the Commission authorized the use of spread spectrum systems by Part 15 devices.[13] The Commission noted that devices employing spread spectrum technology enjoyed increased "resistance to interference from other emissions" and that "the unique characteristics of spread spectrum offer important options for the communications system designer."[14]

Also in 1985, the Commission allocated the 902-928 MHz band to the Amateur Radio Service.[15] The Commission stated that "the initially sparse occupancy of this band recommends it as excellent spectrum for experimentation with wideband modulation formats."[16] In light of develop-

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13 Authorization of Spread Spectrum and Other Wideband Emissions Not Presently Provided for in the FCC Rules and Regulations, 101 F.C.C.2d 419, 426-27 (1985).

14 Id. at 419 n.1.

15 Amendment of Parts 2 and 97 of the Commission's Rules to Implement Allocation of Additional Frequencies for the Amateur Radio Service, the Radio Amateur Civil Emergency Service and the Amateur-Satellite Service, 58 R.R.2d 1073 (1985).

16 Id. at 1076. Four years later in 1989, the Commission encouraged amateur radio operators to implement (continued...)

ments in this band since 1985, the band is surely no longer sparsely occupied.

In its 1989 order amending the Part 15 rules, the Commission greatly expanded the number and types of Part 15 devices that were authorized to operate in the 902-928 MHz band.[17] The FCC noted that "there is a strong demand by the public for the types of devices that are typically authorized under Part 15" and that the rules for Part 15 devices in the 902-928 MHz band would

> enable manufacturers to introduce new equipment providing major benefits to consumers and to take advantage of new technologies . . . . We believe that manufacturers, if given the opportunity to use the ISM frequencies, will develop many new and practical uses of Part 15 devices.[18]

Not a single AVM provider or user objected to the Commission's order expanding Part 15 usage in this band. It should be noted that even though fifteen years had

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[16](...continued)
a new technology called "packet radio" in the 902-928 MHz band. See Amendment of Part 2 of the Commission's Rules Regarding the Allocation of the 216-225 MHz Band, 4 FCC Rcd. 6407 (1989).

[17] Revision of Part 15 of the Rules Regarding the Operation of Radio Frequency Devices Without an Individual License, 4 FCC Rcd. 3493, 3502 (1989) ("Part 15 Order").

[18] Id. at 3502.

passed since the interim AVM rules were established, there were virtually no AVM users in the band.

Later in 1989, the Commission recognized the significant public interest benefits associated with Sensormatic's EAS equipment in the 902-928 MHz band and expressly stated that it would take steps to protect the operation of Sensormatic's equipment from the harmful interference of newly authorized devices:

> We recognize . . . that there are thousands of installed anti-theft systems in operation today that could be susceptible to interference under the rule changes we adopted. According to Sensormatic, these systems protect billions of dollars of merchandise at any given time, and have reduced retail store shoplifting losses from 50 to 80 percent. We are concerned that the interests of retailers and consumers would not be served if installed systems failed to operate effectively because of our rules changes, and significant increases in the incidence of retail theft resulted. Thus, if it is demonstrated . . . that our rule changes are the primary cause of significant problems in the operation of these installed systems that will create major losses for retailers and consumers, we will take steps to alleviate this harm.[19]

In 1990, the Commission reiterated its intent to protect Sensormatic's Part 15 EAS devices within the band:

> The Commission is sensitive . . . to the fact that the Sensormatic Corporation, an industry

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[19] Revision of Part 15 of the Rules Regarding the Operation of Radio Frequency Devices Without an Individual License, 4 FCC Rcd. 7869, 7872 (1989) (emphasis added).

leader, has sold many thousands of its systems to stores across the country. Although we believe the interference potential of newly authorized Part 15 devices will be very slight, we are nonetheless persuaded, out of an abundance of caution, to grant some degree of relief from the immediate implementation of the new rules.[20]

The Commission delaved the authorization of new Part 15

launch a complete new series of products using spread-spectrum technology in the 902-905 MHz sub-band, so that it would continue to operate effectively in the more crowded sub-band. Sensormatic was willing to make these modifications primarily because of the implicit representations made by the Commission that the 1989 rule changes were the "last time" that new devices and services would be authorized in the sub-band.

Now, only three years later, the Commission is unjustly attempting to renege by proposing to flood not only the 902-905 MHz sub-band but the entire 902-928 MHz band with new AVM and LMS devices.

In 1991, the Commission increased the maximum channel bandwidth limit for Part 15 spread-spectrum frequency-hopping systems using the 902-928 MHz band from 25 kHz to 500 kHz.[23] The Commission stated that

> [i]ncreasing this bandwidth will allow frequency hopping systems to spread their transmitted power over a large frequency range and hence decrease the potential for interference to other users. At the same time, the wider bandwidths will provide opportunities for new kinds of equipment to operate under these rules.[24]

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[23] Amendment of Parts 2 and 15 of the Rules With Regard to the Operation of Spread Spectrum Systems, 5 FCC Rcd. 4123, 4125-26 (1990).

[24] Id. (emphasis added).

Most recently, in March 1993, the Commission refused to authorize wind profilers in the band, stating that "there is insufficient information in our record regarding the potential impact of an allocation for wind profilers in the 902-928 MHz band on the current uses of this band."[25]

As the foregoing summary of Commission decisions illustrates, the Commission has repeatedly emphasized, over a period exceeding 20 years, the public interest benefits

thermore, it would be viciously unjust, confiscatory and contrary to the public interest.

In the AVM Notice, the Commission fails even to acknowledge that Part 15 devices provide significant benefits to the business community and the public. Sensormatic urges the Commission to follow the policy goals enunciated in its 1989 Part 15 Order. The Commission should not make any decisions impairing the effectiveness of Part 15 devices within the 902-928 MHz band until it has conducted a comprehensive analysis of the issue, taking into account the major benefits to consumers provided by Part 15 devices.

II. AVM AND NEW LMS SERVICES SHOULD BE PLACED ELSEWHERE IN THE RADIO SPECTRUM

The Commission's proposals to make AVM operation in the 902-928 MHz band permanent and to flood the band with new LMS services would cause severe overcrowding in the band for all concerned. While the Commission acknowledges this problem ("[i]ncreasing the potential uses for LMS services could lead to rapid congestion of available spectrum"[26]), it irrationally proposes expanding the number of licensed operators anyway.

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[26] AVM Notice at 2503.